PREVALENCE OF ANEMIA AMONG PREGNANT WOMEN OF RURAL COMMUNITY IN VIZIANAGRAM, NORTH COASTAL ANDHRA PRADESH, INDIA

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"Anemia in Pregnancy"

ABSTRACT

Objective: Anemia is the most frequently observed nutritional diseases in the world. It is a major health problem that affects 25-50% population of world and nearly 50% of pregnant women. In India, anemia is the second most common cause of maternal deaths, accounting for 20% of maternal deaths. The main objective of the present study is to determine the prevalence of anemia among rural pregnant women of Vizianagram and to explore associated factors with anemia.

Materials and Methods: The study was conducted in the Mother and child hospital, Vizianagram, Vizianagram district, Andhra Pradesh, India. Pregnant women with any age of gestation period, parity and age were recruited for study. Estimation of hemoglobin was carried by standard sahli's pipette method. Anemia was classified according to WHO grading criteria.

Results: Nine hundred eighty-six subjects were enrolled for the study of whom all the study subjects did not meet the criteria of WHO standards of normal grade i.e >11gm/dl. 100% anemic condition was seen. 52.73% has a mild degree of anemia, 40.97% have moderate degree of anemia and 6.28% of population has severe degree of anemia. Pregnant women in 1st trimester of their gestation period has higher prevalence rate than in 2nd and 3rd trimesters. Parity has not showed any significant relation with anemia.

Conclusion: The study confirms that preventing anemia is a challenge. Efforts should be geared towards the early detection and treatment of anemia before delivery to avoid various maternal and fetal complications.

Key words: Anemia in pregnancy, Vizianagram, rural area, India.

INTRODUCTION

Anemia is one of the important factor which decides the outcome of pregnancy.[1] Anemia is a major health problem that affects 25-50% of the population of the world and approximately 50% of pregnant women.[2] Anemia in Pregnancy (AIP), according to WHO is defined as hemoglobin concentration below 11gm/dl.[3] WHO has estimated that the prevalence of anemia is 14% in developed and 51% in developing countries, where as in India it is 65-75%.[4] Indeed AIP is a known factor for many maternal complications such as premature labor, poor weight gain and dysfunctional labor and fetal and neonatal complications such as Prematurity , low birth weight, fetal distress and neonatal distress requiring prolong resuscitation and causing neonatal anemia due to poor reserve.[5,6]

The Prevalence of AIP shows great variation in different parts of the world. Studies from industrialized countries show that 2-45% of pregnant women have Hb less than 11, whereas prevalence are generally higher and the variation is greater in developing countries with 5-90% anemia.[2] In India Incidence of anemia in pregnancy has been noted as high as 40-80 % [7]. The Probable predisposing factors for anemia in pregnant women include parity, low socioeconomic status and substance abuse among others.[8,9]

The National Nutritional Anemia Prophylaxis Programme (NNAPP) was initiated in 1970 with the aim to reduce the prevalence of anemia to 25%, subsequent evaluation have shown no change in the situation.[10] Since 1992 the daily dosage of elemental iron for prophylaxis and therapy has been increased to 100mg and 200mg , respectively under child Survival and safe Motherhood (CSSM) Programme.[11] In view of the above, the present study was carried out to find out the prevalence of anemia in pregnant women and socio-demographic factors associated with anemia in pregnancy in rural population of Vizianagaram district of Andhra Pradesh.

MATERIALS AND METHODS

Study area

The study was done in Vizianagram, Andhra Pradesh. Vizianagram is a backward district in North coastal Andhra Pradesh. It is situated within the geographical coordinate of 18º 7' 12" of northern longitude and 83º 7' 12" of northern longitude and 83º 25' 12" of eastern longitude. The district mainly constitutes rural background. There are both government and non-government hospitals. The present study was undertaken in Mother and Child health (MCH) hospital. This is the only one MCH hospital in entire district of Vizianagaram under the control of APVVP. This area hospital caters to the needs of Vizianagaram district. In addition it serves a large number of patients from adjoining districts of Srikakulam and Visakhapatnam.

Subjects

A total of 986 blood sample were collected from pregnant women with any age of gestation and parity attending antenatal clinic from April 2010 to April 2011. The following data was recorded using a questioner which includes details such as Name, Village, age, Parity, gestation period, dietary habits, weight and height of the pregnant women. Women with bleeding disorders were eliminated from the study.

Methods

Hemoglobin estimation was done by Sahli's pipette method. Hemoglobin was estimated calorimetrically using hemometer. Anemia was classified as per the WHO severity grading criteria. Thus anemia is classified as Norma (>11gm/dl), mild degree (9-10.9gm/dl), moderate (7-8.9gm/dl), severe (<7gm/dl), very severe (<4gm/dl). [10]

RESULTS

The demographic profile of the study population was shown in Table.1. The overall mean of Hb was 8.46 with a range from 4.0 to 10.0g/dl. The distribution was moderate, with a longer tail towards mild degree. The highest concentration of Hb noted in the study was 10gm/dl. No single subject has the normal range of hemoglobin (11g/dl) representing all the study population was anemic. Of total 986 subjects enrolled for the study 520 (52.73%) subjects demonstrated mild degree of anemia and 404(40.97%) subjects has moderate anemia and 62(6.2%) subjects had severe anemia.(Table 1).

The severity of anemia according to the age, parity, gestation period, body mass index and among vegetarians and non-vegetarians and also among house wives and daily labor was shown in Table 1.

Table 1: Association of Anemia with various demographic characters

Demographic characters			Hemoglobin (n=986)					
			Mild degree n=520(52.73%)		Moderate n=404(40.97%)		Severe n=62(6.28%)	
Age in years	Mean	N (%)	Total	%	Total	%	Total	%
≤ 20	19.91 ± 0.32	228(23.12)	105	46.05	102	44.73	21	9.21
21-25	22.62 ± 1.33	733(74.34)	402	54.84	293	39.99	38	5.18
26-30	26.91 ± 1.2	23(2.3)	13	56.52	07	30.43	3	13.04
>30	34.50 ± 0.71	02(0.2)	0	0	02	100	0	0
Parity								
1		508 (51.52)	272	53.54	205	40.35	31	6.10
2		433(43.91)	225	51.96	180	41.57	28	6.46
3		45 (4.56)	23	51.11	19	42.22	3	6.66
Gestation period								
1st Trimester(1-12wks)	11.2 ± 0.3	97 (9.83)	51	52.57	33	34.02	13	13.40
2nd Trimester(13-28 wks)	22.4 ± 1.08	628 (63.69)	318	50.63	274	43.63	36	5.73
3rd Trimester(29-40wks)	33.6 ± 0.49	261 (26.47)	151	57.85	97	37.16	13	4.98
Body mass Index(BMI)								
Under weight	18.19 ± 1.3	381 (38.64)	197	51.70	161	42.25	23	6.03
Acceptable weight	22.07 ±1.36	503 (51.01)	256	50.89	210	41.74	37	7.35
Some excess weight	26.07 ± 0.60	49 (4.96)	28	57.14	19	38.77	02	4.08
Over weight	29.51 ± 3.04	53 (5.37)	39	73.58	14	26.41	00	00
Dietary Habit								
Non - Vegetarian		946 (95.94)	491	51.90	394	41.64	61	6.44
Vegetarian		40 (4.05)	29	72.5	10	25.00	1	2.5
Occupation								
Daily labour		313 (31.74)	159	50.79	126	40.25	28	8.94
Housewife		673(68.25)	361	53.64	278	41.30	34	5.05

The median age group of study population was 22.12 ± 1.8 (18-35) years. Severe anemic condition is seen among the pregnant women with age group between 26-30 years representing 13.04% followed by 9.20% severity among the age group ≤20 and 5.18 among the age group 21-25. Severe anemic condition was nil among the age group > 30 years (Table 1)

The anemic condition among different parity seems to have no significance as the mild, moderate and severe anemic condition seem to have almost the similar values with little variation. But among the gestation period, pregnant women between 1-12 wks (1st trimester) has high rate of severity representing 13.40% followed by 5.73% of severe anemic condition among 2nd trimester and 4.98% severe anemic condition among 3rd trimester. Women with acceptable weight of BMI have 7.35% of severe degree of anemia followed by under-weight women having 6.03% of severe anemia, 4.08% in some excess weight BMI. Severe anemic condition is not seen in person with over-weight. In present study 95.94% (946) pregnant women were Non-vegetarians and 4.05% (40) were vegetarians. Among these higher prevalence of severe degree of anemia is seen among non-vegetarians (6.44%) than vegetarian population (2.5%). Severe degree of anemia was high among daily labor (8.94%) followed by 5.04% in house wives (Table 1)

DISCUSSION

The present study revealed a very high prevalence of anemia (100%) among pregnant women in rural areas of Vizianagram was observed. No single pregnant women have the normal range of hemoglobin (11gm/dl). The maximum level of Hemoglobin noted in this study was 10gm/dl. Majority of the study group has a mild degree of anemia 52.73% followed by moderate degree 40.97% and 6.2% severe degree of anemia. The present study represents the higher rate of prevalence of anemia when compared with the other studies conducted by Nadeem Ahmad in rural population of Maharastra (74.84%) and in studies carried out in the rural areas of Delhi by Virender[12] (96.5%).[11,12] The prevalence of anemia was minimal among overweight patients. This result corresponds well with those of Bently, Nadeem Ahmad.[11,13] Among Non-vegetarians and vegetarians, severe degree of anemia is seen in Non-vegetarian population than in vegetarian population. Severe degree of anemia is seen among daily labor than in house wives. Severe degree of anemia is seen in 1st trimester of pregnancy. In normal pregnancy, the expansion of the plasma volume (50%) compared with the increase in red cell mass (30%). Therefore, hemoglobin values start to decline during the early phase of 1st trimester and reach their nadir near the end of the second trimester.[14] The prevalence of anemia observed in this study reflected the change of hemoglobin values during pregnancy.

CONCLUSION

To conclude, prevalence of anemia was much higher in this area. Screening of anemia, treatment of anemic women and availability of food fortification, milk sugar and salt with iron to build long term iron stores remains the key to reduce anemia. Preconception care, including iron and folic acid supplement should be advocated to reduce this problem. The anemia control programme should be implemented more efficiently in this area. Efforts should be geared towards the early detection and treatment of anemia before delivery. Also, medical staff managing pregnant women should endeavor to investigate anemic pregnant women further in order to identify the etiology whenever possible, despite commencing the usual treatment with iron and folate. All these efforts would help to ensure safe motherhood and achieve the relevant targets of Millennium development goals.

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B V: Analysis and interpretation, manuscript preparation, critical revision of the manuscript, data collection, statistical analysis, and literature search.
KKR: Concept and Design of the study and literature

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